0-169C

CONFIDENTIAL

5 December 1957

MEMORANDUM FOR: THE RECORD

SUBJECT : Visit to [redacted] Report

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1. TIME AND PLACE: 18-21 November 1957. New building, [redacted]

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2. ATTENDANCE: [redacted]

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3. PURPOSE: To review progress on infrared work and to attend dedication of the new laboratory building on 21 November 1957.

4. REPORT:

4.1 New Facilities: The new [redacted] building contains a large [redacted] project area on the main floor and a completely air-conditioned penthouse with an optical room and three parallel dark tunnels (about 100 feet long and interconnecting at each end). Workmen were finishing installations and cleaning in all areas during the week. The present construction certainly does not appear adequate for classified Agency work and conference conditions were difficult, to say the least.

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4.2 B-Units: The primary topic concerned authorization for [redacted] to disclose an equivalent design to: (a) [redacted] (b) potential military customers, and (c) to selected commercial users. [redacted] was informed that such authorization could not be given orally and that he should address a letter through contract channels and take action only in accordance with the official reply. The letter should state explicitly what disclosures were sought and what safeguards would be taken to protect Agency identification with the work. If such safeguards were acceptable, no objection would be foreseen to disclosure to [redacted] and interested military activities on a CONFIDENTIAL security classification level. (Note that the latter has been done on oral approval.) Commercial disclosure should not be

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CONFIDENTIAL

Memorandum for the Record dated 5 December 1957
Subj: Visit to [redacted] 25X1

contemplated at this time, but the question could be re-opened about a year after a quantity of units had been in operational use.

4.3 C-Units: Current concern was centered on the proposed new procurement. [redacted] was informed that the engineering revisions would be covered under the existing contract and that, unofficially, [redacted] attitude towards different types of contracts was desired. Details were noted for possible internal Agency use, but, in summary, anything but a cost-plus-fixed-fee type will entail greater direct and indirect costs and take much longer to negotiate. 25X1 25X1

[redacted] NOTE: Re-opening of work of C-units or E-units will require to expedite provision of a secure working area. 25X1

4.4 Present E-Units: The two sets are complete, requiring only a final check before shipment. One set was demonstrated in a dark tunnel, with tripod mounting and RCA microphone (BK-6B) working against a C-unit. Low-level conversation in the adjoining optical room was picked up clearly. Of the impromptu noises tried, scuffling the feet on the hard floor proved most effective. The upper frequency limit was stated as about 3500 cps; the power supply is believed operable with input from 45 to 60 cps and probably 70 to 120 volts. The instruction book considered inadequate for an untrained user.

The two equipments are believed to meet or exceed current expectations and could be used for an emergency operation if first returned to [redacted] for check and moisture-proofing. 25X1

The absence of a contract task provision and the expenditure of allotted funds prevent requiring a final technical report on this work.

4.5 Proposed E-Unit Work: The desirability of further work on E-devices was reviewed. [redacted] felt that the scope outlined in the [redacted] proposal of 4 December 1956 was still a good statement of future work, which should include wide frequency limits, highest quality signal handling and transmission, possible provision of alternate power supplies, consideration of two-channel operation ("stereo"), transmission upon "request", etc. Provision should be made for different form factors, more severe environmental conditions, quick delivery capability of latest design and servicing of units. Such a proposal, including delivery of, say, six units would run between $80,000 to $100,000; of which $30,000 to $35,000 could be used this year. 25X1 25X1

Memorandum for the Record dated 5 December 1957
Subj: Visit to [redacted] 25X1

It should be noted that, to take advantage of improved performance quality, the receiver should be tailored to the E-unit. It is suggested that one of the two original C-units and one of the D-units could be so modified. Presumably, any new task would include such receiver modifications in its scope.

4.6 Galvanometers: [redacted] had not followed up the visit to [redacted] in September. An 8000 cps standard galvanometer had been received for test. The standard unit embodies a concave mirror and flat window; [redacted] requires modification to a flat mirror and convex window for our devices. After checking out the standard unit, about 90 days is required for the changes. Apparently funding was the dominant reason for not getting this feature into the E-units. 25X1 25X1 25X1

Extended high frequency galvanometer response must be accompanied by circuit changes. The PbS cell time constant normally also limits response to 3000-4000 cps. Equalization should extend response to 8000 or beyond, but experimental design effort is required to work out and prove the effectiveness of PbS equalization.

4.7 Other: Considering vacation and re-location interruptions, progress on the study is satisfactory. An infrared telescope (for atmospheric "shimmer" work) is nearly completed. APD/GP owes reports or specific references to [redacted] on transmission data. The ultrasonic frequency transmission effort, based on the Lichtsprecher principle, is proceeding very well. Electrostatic (plastic film), semi-conductor, and piezo-electric control of contact with the optical prism have been considered. The last is the most promising, with Rochelle salt and barium titanate the available workable materials. The humidity effects rule out the Rochelle salt. The electro-mechanical modulus for barium titanate will permit use of a small lever (ca. 2 cm long), within the allowed voltage range, to give the desired mechanical translation. An upper frequency limit of 50 to 60 Kcps is foreseen. Feasible alternatives to 100 Kcps or beyond are unknown at this time. 25X1

5. ACTIONS:

5.1 RD-54-Task X (Study): Present funding is adequate through January. Immediate action on a corresponding extension of time is required. Additional funding of $40,000 is required to carry work through June 1958.

CONFIDENTIAL

Memorandum for the Record dated 5 December 1957
Subj: Visit to [redacted] 25X1

5.2 RD-54-Task VIII (E-units): [redacted] should be requested 25X1
to draft a proposal, based on 4.5 above modified per C/APD desires. APD/GP will have the present E-units for demonstration about 9 December 1957.

5.3 Other action as indicated in Section 4 above, with particular attention to providing a secure working and storage area.

6. OTHER: The dedication and inspection-viewing of the new laboratory were very successful with the infrared exhibits attracting very favorable comments and interest. [redacted] personnel were uniformly 25X1
cordial and hospitable.

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